

INSIDE

BIOWA™—
Diversifying Iowa
manufacturing and
agriculture

Page 3

**IIOF Water/Wastewater
Program—A resource
and catalyst for change**

Page 4

**Network merger
simplifies small
business
contracting**

Page 5

**Iowa's economy
depends on
manufacturing**

Page 6

**Competition, quality,
and the satisfied
customer**

Page 8

**IMEP presents new
account managers**

Page 10

Engineering theory backs design success

By Ron Cox and John Roberts, CIRAS



Gerry McClure (left), Schebler Company president, with Ron Cox, CIRAS director

For Schebler Company in Bettendorf, Iowa, a newly designed high-heat cooling tunnel was producing the desired results, but the company needed the factual data of an engineering analysis to confirm and document its success. Schebler Company manufactures food and packaging equipment, chimney systems, and construction products, specializing in stainless steel fabrications.

Cooling tunnels are used in the food industry for rapidly cooling baked products, such as cookies, snack bars, and candies. The machines are designed to remove large amounts of heat, sometimes in excess of 100,000 btu per hour, and at the same time effectively handle the heat rejection process, explains Schebler Company President Gerry McClure.

“Our goal was to develop a computer model that would simulate the conductive and convective heat transfer in a high-heat rejection cooling tunnel,” says McClure. A comprehensive engineering process would enable the company to analyze the accumulative heat transfer process of the cooling tunnel it had fabricated and installed. The goal was to use the program as a design tool for future products.

McClure and Schebler Business Unit Manager John Guinta worked on the project with CIRAS Industrial Specialists John Roberts and Ron Cox and faculty from ISU's mechanical engineering department. The team conducted an initial evaluation of the cooling tunnel, including gathering information on components, such as blower systems and tunnel dimensions, as well as documenting details relating to air flow, product density, moisture content, etc. Next, it identified different energy processes of the system and compiled the engineering theory associated with these processes.

The CIRAS team then developed a computer program that Schebler Company could use for assessing the heat transfer capabilities of future cooling tunnels. The program included models for conduction, convection, radiation, and evaporation of baked products within the cooling tunnel. “The program essentially verified the accuracy of our model, which gave us a better understanding of the heat transfer process for the design we had developed,” states McClure.

Continued on page 11

The IMEP/IPRT connection

The Schebler Company project came to CIRAS through the efforts of former Iowa Manufacturing Extension Partnership (IMEP) Account Manager Ilene Deckert, who helped the company establish contact with the Institute for Physical Research and Technology's (IPRT) Company Assistance program at Iowa State University.

IPRT's Company Assistance program collaborates with account managers and CIRAS staff to help companies locate funding and work on research projects dealing with new product development and overall improvements in manufacturing performance. The project was coordinated by Jodi White.

For information on how your company can benefit from technical assistance programs, contact your local IMEP account manager (see page 10) or Jodi White, IPRT, at 515-294-4055; jwhite@iastate.edu.

CIRAS Mission Statement

The mission of CIRAS is to enhance the performance of Iowa industry and associated entities through education and technology-based services.

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BIOWA™ – Diversifying Iowa manufacturing and agriculture

By Jill Euken, CIRAS

In November 2003, the BIOWA™ Development Association, a non-profit organization promoting the growth and development of Iowa's bioeconomy, sponsored two biobusiness legislative meetings for state senators and representatives. The goal was to present BIOWA's vision and roadmap, discuss bioeconomy opportunities in Iowa, and develop strategies for its growth and sustainability.

Hosted by four Iowa biobased businesses—West Central Cooperative in Ralston, HON Industries in Muscatine, Genencor International in Cedar Rapids, and Green Products in Conrad—the meetings gave attendees a better understanding of Iowa's capabilities to develop biorefineries and biobased businesses.

Several ideas were proposed and discussed, including providing manufacturers, agribusinesses, and entrepreneurs more access to the Iowa Values Fund for developing and expanding biobased initiatives, as well as working more vigorously on bioindustry ideas with the Regent institutions, the Agricultural Experiment Station, and ISU Extension.

CIRAS employees Jill Euken and Tim Sullivan are active participants in the BIOWA program. To date, their efforts have led to many successful ventures. In 2003, Euken and Sullivan received grants from the W. K. Kellogg Foundation, the Iowa Energy Center, and the Department of Energy/Cargill Dow to set up the Bioeconomy Working Group (BWG), one of three consortiums that make up the Value Chain Partnership for Sustainable Agriculture (VCPSA), a Kellogg Foundation initiative that rewards farmers who practice high standards of environmental and community stewardship. VCPSA is supported by the Leopold Center for Sustainable Agriculture, Practical Farmers of Iowa, Iowa State University Extension, the Henry A. Wallace Endowed Chair for Sustainable Agriculture, and ISU's College of Agriculture.

The BWG's role is to research, analyze, model, and implement profitable business strategies for developing agricultural value chains for biobased businesses. A value chain for biobased products would consist of plant breeders, agricultural producers (raw materials), pre-processors, biobased manufacturers, wholesalers, and retailers. Since its inception, the BWG has accomplished many goals, from recruiting supporters of value chain-based businesses to generating funds for new development projects.

Collaborations between CIRAS, ISU, and several biobased industries, for instance, have garnered Iowa companies several grants from funding agencies, such as the USDA,



From left to right, Representatives Paul Wilderdyke, Helen Miller, David Tjepkes, and Delores Mertz attend a legislative meeting at West Central Cooperative in Ralston.

Iowa Department of Transportation, and USDOE. Ongoing projects include:

- A \$1.2-million USDA grant to West Central Cooperative to study new technologies for methyl ester production from soybeans (Euken worked with West Central CEO Jeff Stroburg to develop a plan and acquire funds to support commercialization of new production process technologies developed by ISU faculty members George Kraus, John Verkade, and Victor Lin.).
- Manufacturing biobased plastics from dried distiller's grain in cooperation with MGP Ethanol of Lakota, Iowa.
- Exploring opportunities with HON Industries to manufacture natural fiber mats in place of fiberglass mats currently being used in products like office partitions.

In addition to these projects, Euken and Sullivan make presentations across the state to help manufacturers and agribusinesses learn more about BIOWA. Recently, they launched the Biobased Industry Outlook Conference, an annual event to explore issues in developing Iowa's bioeconomy. ■

To learn more about BIOWA, contact Jill Euken at 712-769-2600; jeuken@ciras.iastate.edu, or Tim Sullivan at 515-727-0656; sullytt@ciras.iastate.edu, or visit the BIOWA Web site at www.BIOWA.us.

IIOF Water/Wastewater Program—A resource and catalyst for change

By Mike Willett, CIRAS, and Steve Jones, Civil, Construction, and Environmental Engineering

It is anticipated that at least 40% of Iowa companies could achieve measurable savings in energy consumption, chemical costs, and overall improvement by addressing the many crosscutting issues in water/wastewater quality management that affect Iowa's different industry sectors and communities.

The Iowa Energy Center (IEC) has been active in focusing on energy costs associated with water and wastewater treatment in Iowa. CIRAS is supporting this effort by working with the IEC and the Iowa Department of Natural Resources (IDNR) in a U.S. Department of Energy-sponsored Iowa Industries of the Future (IIOF) program that seeks to develop statewide policies and improved decision-making processes on water and wastewater treatment usage.

Industry and water usage

1. Some industries have their own wastewater treatment facilities and individual National Pollution Discharge Elimination System (NPDES) permits, which contain numeric limits for various pollutants in processed water or for discharging wastewater into receiving streams. Compliance in these systems is monitored through monthly reports to the IDNR. In addition, the United States Environmental Protection Agency (EPA) has established pre-treatment requirements for industries in accordance with the North American Industry Classification System code, a national numbering system used to identify companies by industry sectors. Industries are also expected to comply with minimum requirements set by the EPA.
2. Other industries send waste into a municipal wastewater treatment system, where the discharge is controlled through an industrial pre-treatment agreement negotiated between the industry and the city, which is responsible for managing and administering the agreement. These industries must also adhere to EPA guidelines and are also subject to each city's option to set local limits as a way to manage total concentration and pollutant loads of individual contaminants. A select number of industries have both an NPDES permit for direct discharges and a "pre-treatment agreement," as described above, for water that is sent to a municipal system for further treatment.

Iowa industry water/wastewater issues

1. **Optimizing water usage in food processing and manufacturing.** Excessive water use can lead to increased costs for purchased water, as well as an increase in the volume of wastewater to be treated.

2. **Selecting appropriate treatment processes.** High concentrations of organics and suspended solids have a direct impact on treatment costs in the food processing industry. Choosing an appropriate water treatment process can lead to significant reductions in energy use and initial capital costs. For example, adopting new technologies in anaerobic production processes can significantly cut energy and residual disposal costs. Similarly, optimizing process control procedures in aerobic treatment processes can result in energy savings and a better control of effluent water quality.
3. **Improving effluent quality and treatment costs.** For industries with effluent limits for metals, selecting an appropriate treatment technology can lead to significant savings in chemical costs, labor, costs for disposal of treatment residuals, and opportunities that can lead to the development of on-site metals recovery and/or recycling facilities.
4. **Auditing and managing energy use for treatment processes.** Process control optimization and total productive maintenance are treatment operations that can reduce energy use and overall treatment costs. In addition, many of the principles used in "lean manufacturing" can be applied to process control and optimization for water and wastewater processing.

IIOF initiatives

To address water/wastewater issues in different industry sectors, the IIOF program has proposed forming a water/wastewater alliance steering committee, which will include representatives from companies and communities involved in water/wastewater processes. The steering committee will participate in workshops to set performance targets, develop a roadmap, and identify an agenda.

One of many important tasks to be undertaken by the steering committee will be to document Iowa's existing water treatment technologies. The committee plans to conduct a survey of over 600 companies to learn more about current treatment technologies, as well as develop a water/wastewater profile for different types and sizes of companies. In addition, the survey aims to identify successes or best practices that companies can use to implement new energy-efficient and cost-effective treatment technologies.

Collaborating with industrial partners, the steering committee will identify and assess energy use treatment costs and their relative performance specific to water/

Network merger simplifies small business contracting

By Kathy Bryan, IPOC

The U.S. Small Business Administration (SBA), the Department of Defense (DOD), the Office of Management and Budget, and the General Services Administration have taken an important step in simplifying the federal contracting process for small businesses.

On January 1, 2004, Pro-Net and the Central Contractor Registration (CCR) databases merged into one portal that can be used now to enter and search for small business sources. The merger has led to CCR assuming all of Pro-Net's search capabilities and functions.

The strategic Pro-Net/CCR linkage is part of a comprehensive effort to simplify government-wide vendor registration, which has been accomplished by transferring Pro-Net's functions to CCR. Anyone wanting to procure federal contracts must first register with CCR.

Now, small businesses no longer need to manually register with both Pro-Net and CCR. The CCR-Pro-Net merger is another step toward the goals of unifying common systems and ensuring that data need only be entered once and then can be reused. The new network incorporates DOD's CCR database.

"We are continuing to make strides in simplifying the process to help small businesses conduct business with the government," said SBA Administrator Hector V. Barreto. "By integrating Pro-Net's functions into CCR, the foundation of the Business Partner Network, we are

helping to advance the President's goal of a single, user-friendly, integrated acquisition environment."

Procuring agencies and contracting officers, who in the past have relied on Pro-Net as the authoritative source for getting information on certified vendors for the SBA 8(a) Business Development Program, the HUBZone Empowerment Contracting Program, and the Small Disadvantaged Business Program, will now access this information through CCR.

Additionally, to conduct market research and confirm eligibility for these procurement preference programs, users will need to go to the CCR Web site at www.ccr.gov and click on "Dynamic Small Business Search." This site also features search options and information previously available through Pro-Net.

Similarly, within SBA, Pro-Net will be superseded by the Small Business Source System (SBSS), an internal database of businesses certified by SBA as participants in the 8(a), HUBZone, and Small Disadvantaged Business programs.

Businesses will no longer have to self-certify. By performing calculations using employment or revenue information entered into CCR, the SBSS system will determine the company's small business status. Firms will update their records on the CCR update Web page. ■

For more information on federal contracting, contact Kathy Bryan at 515-294-4473; kbryan@ciras.iastate.edu.

Attention: Central Contractor Registration vendor

The IRS and the Central Contractor Registration (CCR) Program Management Office have formed a partnership to review and validate the tax ID number and/or social security number currently listed in your CCR profile.

A pilot program has begun, with full implementation expected in the near future. Registered CCR vendors should take this time to ensure that the legal business name is identical to the name registered with the IRS. Vendors will be notified if there is a discrepancy.

Breakfast, Business, & More

Network with small business owners, corporate buyers, and potential clients. Connect with federal and state area representatives. Visit with local business service programs that can aid your business growth.

The next events will be a Series of Central Iowa Breakfasts to be held on **May 6**, **July 15** (Mini-Expo), **September 16**, and **November 4** at the Des Moines Downtown Holiday Inn, 1050 Sixth Avenue, at 7:30 a.m.

Facilitator: Ted Williams, CEO, Williams Group, Inc., Des Moines, Iowa.

Sponsors: Channell Construction Iowa and Nebraska, Principal Financial Group, and the Minority and Women Business Conference and Expo (in cooperation with IPOC/CIRAS and Drake Small Business Development Center).

For reservations, contact Kathy Bryan at 800-458-4465; kbryan@ciras.iastate.edu.

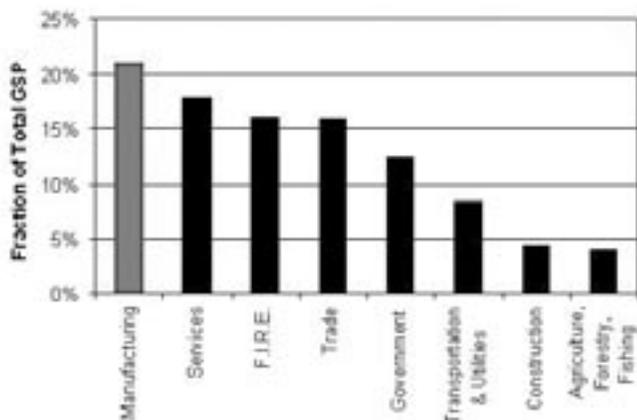
Iowa's economy depends on manufacturing

By Ron Cox and Jen Diaz, CIRAS

Iowa is home to 5,100 manufacturing employers and over 5,900 manufacturing establishments. These companies add over 19 billion dollars to the gross state product (GSP), making manufacturing the largest economic sector in Iowa.

Iowa GSP by sector

The manufacturing sector comprises 21% of the GSP, which places Iowa 8th nationally in terms of the importance of manufacturing to the state's economy. Services, F.I.R.E. (finance, insurance, and real estate), and Trade are the next three largest sectors of the Iowa economy. At the national level, Services, F.I.R.E., and Trade, respectively, are the three largest components of the gross domestic product (GDP). Manufacturing is the fourth largest sector nationally, accounting for about 14% of the GDP.¹

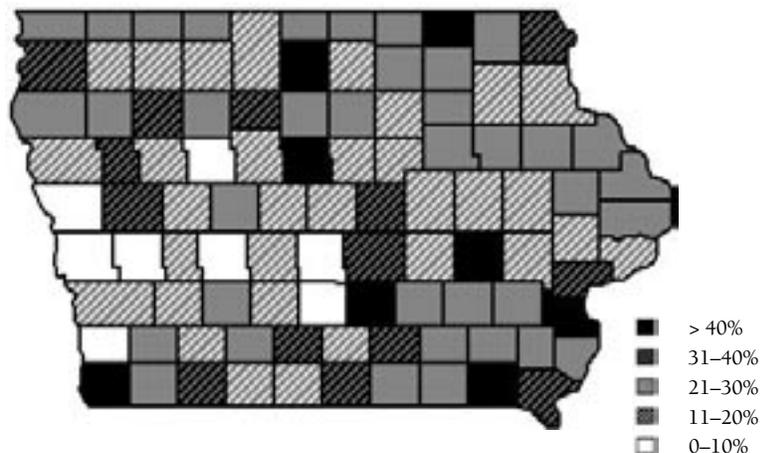


Although manufacturing is the largest segment of Iowa's GSP, the manufacturing employment level, at 227,000, ranks third after the services and trade sectors. In part due to the higher value-added per job, manufacturing pays some of the highest wages in the state. In Iowa, only the F.I.R.E. sector pays higher wages than the manufacturing sector.²

Fraction of private business employees

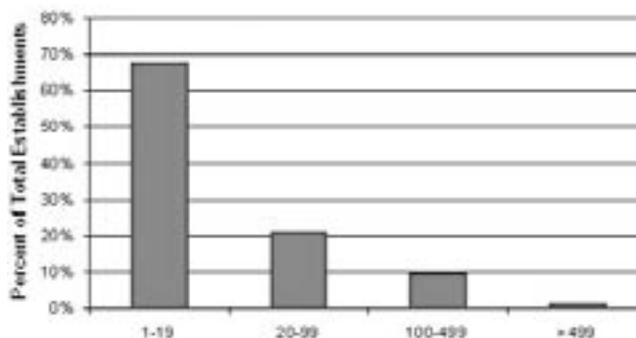
The majority of Iowa's manufacturing employees work in metropolitan counties. In fact, over half of all manufacturing employees work in just 12 counties. Though the number of manufacturing establishments and employees is much higher near population centers, county dependency on manufacturing employment varies widely. Statewide, manufacturing employees comprise 19% of Iowa's private industry workforce. However, over 30% of

this workforce is in manufacturing in one-quarter of Iowa's counties. Of the 50 counties with the highest dependency on manufacturing, 40 have fewer than 30,000 residents.² A map showing the fraction of private sector employees working in manufacturing is displayed below.



Company size distribution

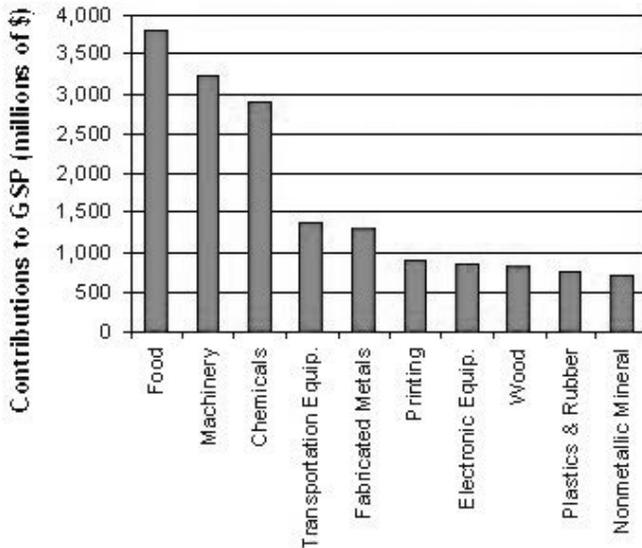
Manufacturing firms are defined as small or medium-sized enterprises if they have fewer than 500 employees. In Iowa, 98% of all manufacturers fit this definition. The graph below shows the distribution of manufacturing companies by size. One-third of Iowa's manufacturers have fewer than five employees, and there are only 29 manufacturing companies with more than 1,000 employees.³



Key manufacturing industries

A chart showing the ten largest manufacturing industries in Iowa is displayed below. The food and kindred products industry, which includes processed food, comprises \$3.8 billion of the GSP or 20% of the manufacturing GSP. Industrial machinery and equipment is the next

big contributor at 17% of the manufacturing GSP. The chemical industry, mainly in the production of fertilizers, is third, providing 15% of the manufacturing GSP.¹



Value of manufacturing exports

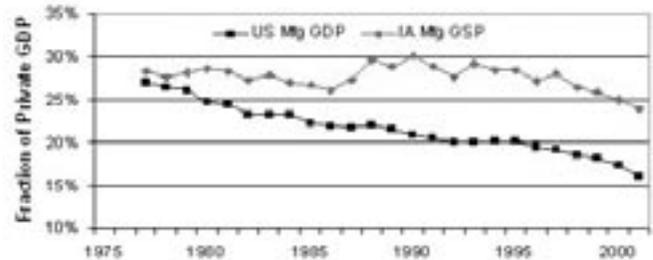
Iowa ranks 22nd nationally in the percentage of manufacturing jobs directly or indirectly tied to manufacturing exports. The state ranks 14th nationally in percentage of all private sector jobs (8.4%) tied to manufacturing exports. In all, over 107,000 Iowa jobs depend on Iowa manufacturing exports.⁴

In 2002, Iowa exported \$4.5 billion worth of manufactured items, which ranks it at 29th nationally. Canada remained Iowa's biggest trading export items recipient, followed by Japan, Mexico, and Germany. Machinery topped the list of exports at over \$1.2 billion, and the export of food products was second at over \$900 million. Exports of chemicals, electronic equipment, and electrical equipment amounted to about \$400 million each.⁵

Manufacturing trends

The portion of the GDP due to manufacturing has seen steady growth over the past two decades. As a percentage of the private industry GDP, however, manufacturing has steadily declined from 27% in 1977 to 16% in 2001.¹

The portion of the Iowa GSP due to manufacturing has seen steady growth as well over the past two decades. Unlike what has happened at the national level, the fraction of the private industry GSP due to manufacturing has remained between 25 and 30 percent until just the past few years. The level declined slightly during the recession of the early-to-mid 80s, climbed in the late 80s, and then has shown a gradual decline over the past decade to a current value of 24%.¹



As mentioned previously, the services industry is the largest segment of the GDP. It is also the sector that has seen the fastest growth over the past twenty years, followed closely by the F.I.R.E. sector. Nationally, growth in the agriculture, forestry, and fishing sector has been the slowest, followed by manufacturing. In Iowa, the services sector has seen the fastest growth rate over the past two decades, while agriculture has grown at the slowest rate. ■

Reference material

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3. Selectory CD-ROM, Harris InfoSource, 2003.
4. Trade Promotion Authority, www.tpa.gov.
5. TradeStats Express, Office of Trade and Economic Analysis, U.S. Department of Commerce, www.export.gov.

To schedule a presentation to a civic group on the status of manufacturing in Iowa, contact Ron Cox at 515-294-9592; rcox@ciras.iastate.edu. For more information on the impact of manufacturing in Iowa, visit the "Manufacturing Data" Web site at www.ciras.iastate.edu/mfginia.asp.

Competition, quality, and the satisfied customer

By Merle Pochop, CIRAS

Manufacturing employment data over the past few years have shown a consistent downward trend and appear discouraging. In 1950, more than 30% of the U.S. workforce was in manufacturing. Today, the number is about 12% and dropping.

For Iowa manufacturers, the downward trend is not news. Rather, they view the situation as one where “competition is getting tougher each year,” with more and more resource providers seeking to satisfy the needs of consumers.

The question then is how does one become more competitive and survive, if not thrive, in the face of increasing competition?

Competition drives quality

The U.S. leads the world in both productivity and productivity growth. In fact, part of the decline in U.S. manufacturing employment numbers over the years has been due to increased productivity in manufacturing. Provision of services, separately or in conjunction with product offerings, is another factor that is replacing manufacturing's status as the country's primary economic engine. While it's popular these days to talk about losing jobs to low-wage areas overseas, it is also interesting to note that worldwide downward trends in manufacturing employment also follow the U.S. curve.

Manufacturing is Iowa's largest economic sector, so phasing it out altogether is out of the question. The state's economic strength comes from manufacturing, and while achieving success in this sector may be tougher today than ever before, Iowa manufacturers still continue to be productive and remain competitive.

Solutions to managing competitive forces are generally more easily formulated than implemented. A key factor in maintaining competitiveness, for instance, is meeting customer satisfaction levels. The ISO 9001:2000 Quality Management System requirement in Section 5.2, under 'Management Responsibility,' clearly states: “Top management shall ensure that customer requirements are determined and fulfilled with the aim of enhancing customer satisfaction.”

This may not be the only ISO reference to management's responsibility in addressing customer satisfaction, but it is surely the most direct. If satisfying a customer's needs is a sure way of acquiring new customers and maintaining existing ones, then a company's goal becomes very clear.

Big is example for small

A list of what satisfies customers can be long and intricate, but most issues revolve around categories within a product

or service, such as performance, appearance, reliability, features, and price. Together, these issues form an overall category called 'quality.'

A simple way to arrive at customer satisfaction is to improve performance in all these areas. The problem, however, is that there are never enough silver bullets in the resource bin to accomplish all that needs to be done. A better solution is to identify issues that are key to satisfying the needs of the customer and concentrate first in these areas.

One approach is to use tools developed by larger firms to enhance customer satisfaction and loyalty. Valuable knowledge gained at this level can help identify a customer's most pertinent needs. In theory, customer satisfaction is no more than gauging user response. At the same time, it also involves trade-offs in cost issues, particularly when balancing needs to resources. How, then, does one arrive at an equitable solution? Like all valuable activities in business, assessing customer satisfaction requires an investment of time, effort, and a systematic execution of the process.

Surveys are one way to determine customer satisfaction levels. Large companies typically contract out these services, thereby making the process in itself a very real cost to the company. Smaller entities can learn from this model by making use of all the same tools and, perhaps, arriving at the same or even better results.

Often, the unhappy don't return

The following industry example shows just how critical customer satisfaction is:

The consumer industry handles thousands of customers at any given time. A customer base this large also generates thousands of complaints as well. When studying complaints, a survey team found that out of 350,000 instances of poor service, about 50% complain. Of these,

- 40% are satisfied by the response, but 5% leave anyway;
- 35% are mollified by company action, but 25% of these leave;
- 25% are not satisfied by what the company can do, and 70% of this group leaves.

Of the 50% who choose not to file a complaint, 45% leave. In other words, 36% of customers will leave if their needs are not met in an efficient and effective manner!

Continued on page 11

A kitchen for all needs and ages

By Andy Bice and Jessica Rose, CIRAS

As America's elderly population grows in numbers, it's important that consumer products also reflect their changing needs. The U.S. Department of Health and Human Services' Administration on Aging (AoA) is recognizing this critical demographic shift and has responded by sponsoring a project close to the hearts and well-being of millions of elderly and special needs people.

The AoA universal design kitchen project, currently being conducted by CIRAS staff and students, together with Professor Pat Patterson (Iowa State University's industrial and manufacturing systems engineering department), Mary Yearns, faculty from the College of Family and Consumer Sciences, and Bertch Cabinet Manufacturing, aims to create a kitchen that is easily maneuverable and accessible for all range of users.

The main feature of the design is a modular set of kitchen cabinets that can be moved and whose heights can be adjusted by using top boxes. Top boxes are smaller units that fit on top of a modified cabinet unit and function as drawers that are available in 3-, 6-, 9-, and 12-inch sizes. Another unique feature of this system is that each basic cabinet unit is equipped with a universal rail system, allowing all drawers to be interchanged with one another.

Currently, the cabinet project has progressed to a stage where the team has assembled a prototype of an actual kitchen. Volunteers from three different age groups, both male and female, are experimenting with its use. First, they are required to prepare a meal by working in a standard setup. The setup is then reconfigured to the preference of the user by making one of several adjustments, such as adjusting countertop height or switching around the



From left: Pat Patterson, professor, ISU industrial and manufacturing systems engineering (IMSE) department; Andrew Bice, industrial specialist, CIRAS; Andrew Wendling, ISU engineering student working for CIRAS; and Kevin Brownfield, IMSE engineer

drawers. Users are then asked to prepare the meal again using the new configuration. The group's feedback is used to modify the design to better meet their needs.

The universal design kitchen is a work in progress. The design team is continually gaining new insights and ideas on consumer preferences and making design iterations to eventually make this product commercially available. Bertch Cabinet is in the process of manufacturing, evaluating costs, and building prototypes in an effort to send this product to market. ■

For more information on the universal design project, contact Andrew Bice at 515-294-4478; abice@ciras.iastate.edu.

IIOF water treatment

Continued from page 4

wastewater management. Committee members will then develop a vision and roadmap for improving costs and process performance of both new and existing industries. Input from the steering committee, combined with feedback from state agencies that have energy management as their mission will help the IIOF develop a state-level strategy.

In another initiative, the IIOF program plans to enlist student help as part of a new concept developed by the IDNR this year. The IDNR's student internship program will involve students implementing best practices methodologies in the IIOF program. By participating in actual energy efficiency, waste reduction, and pollution prevention programs, students will learn how to become future environmental leaders.

The goal of the internship program is to sustain ideas and ventures over a long period of time and generate success stories that Iowa industries can emulate. Ultimately, the success of the IIOF water/wastewater program will come from a cooperative partnership between academia, government, and the private and public sectors. ■

For more information on water/wastewater and IIOF or to get involved, visit the CIRAS Web site at www.ciras.iastate.edu/IOF/water.html, or contact Mike Willett, CIRAS, at mwillett@ciras.iastate.edu; (319) 266-3260, or Steve Jones, CCEE, at sejones@iastate.edu; (515) 294-3957.

IMEP presents new account managers



Bob Coacher has worked as an account manager through IMEP partner Western Iowa Tech Community College since September 2001. Prior to this, Coacher was a business consultant with NOA Global, Inc. in Des Moines. Coacher has a B.S. degree in engineering from Iowa State University and an M.B.A. from the University of South Dakota in Vermillion.



David Stineman comes to IMEP after spending nine years as a regional sales manager for a German manufacturer of capital equipment for the wood products industry. Prior to this, he served for 20 years in various manufacturing management positions in the wood window industry. Stineman earned his B.S. degree in forestry with a minor in industrial management from Iowa State.



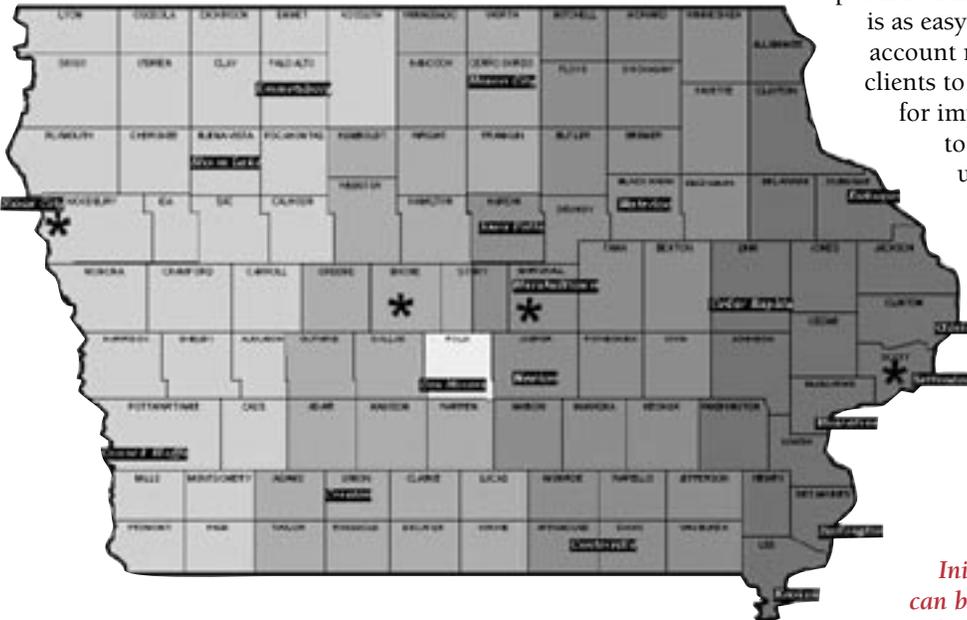
Mike Maloney joined IMEP in November 2003 and resides in Bettendorf, Iowa. His background is in industrial sales and marketing with over 24 years of experience with Alcoa, Inc. in locations throughout the United States. Maloney has a B.S. degree in economics and industrial administration from Iowa State.



Derek Thompson joined IMEP in November of 2003. Thompson has over 20 years' experience in the window manufacturing and foundry industries. His areas of expertise include supply chain management, sales and purchasing, and vendor relations. Thompson holds a B.A. from Iowa State University.

Iowa Manufacturing Extension Partnership Account Manager Territories

1 Bob Coacher rcoacher@imep.org	3 Dave Stineman dstineman@imep.org	5 Mike Maloney mmaloney@imep.org
2 Derek Thompson dthompson@imep.org	4 TBA	



Iowa MEP Central Office
2701 SE Convenience Blvd., Suite 13
Ankeny, Iowa 50021
515-289-0600
977-965-IMEP

IMEP contacts

The Iowa Manufacturing Extension Partnership (IMEP) is a statewide network that provides technical and business assistance to small and mid-sized manufacturers. CIRAS is a service provider partner of IMEP. Accessing IMEP resources is as easy as contacting your local IMEP account manager (AM), who meets with clients to answer questions, identify areas for improvement, and provide links to resources that companies can use to increase productivity and competitiveness. AMs also provide a third-party evaluation service that helps partners and clients understand the full impact of projects completed within the system. IMEP AMs are assigned regional territories but share some clients throughout the state based on industrial categories.

Initial contacts with your local AM can best be made by calling the IMEP central office at 877-965-IMEP (4637) or 515-289-0600.

Design success

Continued from page 1

"I think the main benefit from this project was that, not only do we now have an accurate model, but also we have a better understanding of the heat transfer process in our design," says McClure. "The model helped us quantify our intuitions, and in doing so, we were able to make further design improvements and not rely solely on guesswork."



Cooling tunnels are used to rapidly cool baked products in the food industry.

The market for cooling tunnels is fairly substantial, with competitors in the U.S. and Europe, says McClure. An effective design, he adds, has enabled Schebler to plan for a lower cost design with verifiable efficiency.

For more information on CIRAS engineering services, contact John Roberts at 515-294-0932; jroberts@ciras.iastate.edu.

Customer satisfaction

Continued from page 8

Most Iowa companies are not directly involved in the volatile consumer goods/services markets. But, considering the cost of establishing even one new customer, who wants to risk alienating anyone, if there is a choice? Customer satisfaction activities do require preparation and input. What do we want to learn? How are we going to do it? The good news is that much of what most firms need to do can be done in house.

For more information on customer satisfaction strategies and methods, contact Merle Pochop at 712-274-0048; pochop@ciras.iastate.edu.

Gruhn heads CIRAS Advisory Council



Ryan Gruhn, president of Plastic Professionals Rotational Molding Inc. and Plastic Professionals Mold Building Inc. in Atlantic, Iowa, will serve as chair of the CIRAS Advisory Council.

Gruhn has 10 years of work experience, primarily in the engineering and product development arena. In his leadership position, Gruhn hopes to help CIRAS reach out to more Iowa companies. "Iowa is extremely fortunate to have such an impressive resource that can provide valuable assistance to industry in the state," he says.

Plastic Professionals' rotational molding and mold building operations are divisions of Owner Revolution Inc., formerly known as Schafer Systems. Both companies moved to a new facility in Atlantic recently and specialize in manufacturing molds for a wide range of plastic products.

The CIRAS Advisory Council is a voluntary organization of Iowa business people that serves as a liaison between manufacturers, CIRAS, and Engineering Distance Education (EDE). The council meets with CIRAS staff four times a year to discuss ideas and plans that can help better meet the needs of Iowa manufacturers.

New central staff member



CIRAS welcomes Steven Winter, the newest member to the central staff in Ames. Winter is an industrial specialist with the USDA Biobased Products Program. His responsibilities include developing national outreach activities to engage biobased manufacturers and vendors, coordinating activities to establish testing resources, implementing ISO procedures for program operations, and supporting biobased manufacturing through engineering expertise. Winter is also interested in business planning for start-ups and ongoing operations, manufacturing processes, and product development, analysis, and testing.

Prior to joining CIRAS, Winter worked in various product development and engineering management roles for industrial equipment manufacturers, including Caterpillar, Inc. He has a Ph.D. in engineering mechanics from Iowa State University and an M.B.A. in strategic business planning from Drake University in Des Moines, Iowa. Winter and his family reside in Pella. Their interests include biking, camping, and hiking.

INSIDE

BIOWA™ – Diversifying Iowa manufacturing and agriculture	Page 3
IIOF Water/Wastewater Program	Page 4
Network merger simplifies small business contracting	Page 5
Iowa's economy depends on manufacturing	Page 6
Competition, quality, and the satisfied customer	Page 8
IMEP presents new account managers	Page 10



www.ciras.iastate.edu

WebWatch: Manufacturing in Iowa

For comprehensive statistics, information, and resources on Iowa manufacturing, visit the CIRAS Web site at www.ciras.iastate.edu.

Scroll down to 'Iowa Industry' on the sidebar to the left of the screen, and click on 'Manufacturing Data.'

The site provides additional graphs, charts, and maps that illustrate the importance of manufacturing in Iowa.



Focus: Manufacturing

CIRAS News is published quarterly by the Center for Industrial Research and Service and edited by the CIRAS publications team. Design and production is by Engineering Communications and Marketing, Iowa State University. Contact John Van Engelenhoven at 515-294-4475 or jve@ciras.iastate.edu with questions and comments regarding the newsletter.

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